



SUBSTITUTE SEQUENCE LISTING

<110> Thibeault, Diane
Lamarre, Daniel
Maurice, Roger
Pilote, Louise
Pause, Armin

<120> Purified Active HCV NS2/3 Protease

<130> 13/082

<150> 60/256,031

<151> 2000-12-15

<160> 25

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1230

<212> DNA

<213> HCV

<220>

<221> CDS

<222> (1)...(1230)

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Met Asp Arg Glu Met Ala Ala Ser Cys Gly Gly Ala Val Phe Ile Gly	
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ctt gca ctc ttg acc ttg tca cca tac tat aaa gtg ctc ctc gct agg	96
Leu Ala Leu Leu Thr Leu Ser Pro Tyr Tyr Lys Val Leu Leu Ala Arg	
20 25 30	

ctc ata tgg tgg tta cag tat tta atc acc aga gtc gag gcg cac ttg	144
Leu Ile Trp Trp Leu Gln Tyr Leu Ile Thr Arg Val Glu Ala His Leu	
35 40 45	

caa gtg tgg atc ccc cct ctc aat gtt cgg gga ggc gcg gat gcc atc	192
Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile	
50 55 60	

atc ctc ctc acg tgc gca gtc cac cca gag cta atc ttt gac atc acc	240
Ile Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr	
65 70 75 80	

aaa ctc ctg ctc gcc ata ttc ggt ccg ctc atg gtg ctc cag gca ggc	288
Lys Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly	
85 90 95	

ata acc aaa gtg ccg tac ttc gtg cgt gcg cag ggg ctc att cgt gcg	336
Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala	
100 105 110	

tgt atg ttg gtg cgg aag gct gcg ggg ggt cat tat gtc caa atg gcc	384
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Cys Met	Leu	Val	Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala		
	115					120					125					
ttc atg aag cta gct gcg ctg aca ggt acg tac gtt tat gac cat ctc																432
Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu						135					140					
	130															
act cca ttg cag gat tgg gcc cac gcg ggc cta cga gac ctt gca gtg																480
Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val						150				155						160
	145															
gcg gta gag ccc gtc atc ttc tct gac atg gag gtc aag atc atc acc																528
Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr						165			170							175
tgg ggg gcg gac acc gcg gca tgc ggg gac atc att tca ggt ctg ccc																576
Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro						180			185							190
gtc tcc gct cga agg gga agg gag ata ctc ctg gga ccg gcc gat aat																624
Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn																205
ttt gaa ggg cag ggg tgg cga ctc ctt gcg ccc atc acg gcc tac tcc																672
Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser																220
caa cag aca cgg ggc cta ctt ggt tgc atc atc acc agc ctc aca ggc																720
Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly																235
																240
cgg gac aag aac cag gtc gag ggg gag gtt caa gtg gtc tcc acc gct																768
Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala																255
aca caa tct ttc ctg gcg acc tgc gtc aac ggc gtg tgt tgg act gtc																816
Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val																265
																270
ttc cat ggc gcc ggc tca aag acc ttg gcc ggc ccc aaa ggc cca atc																864
Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile																285
acc cag atg tac act aat gtg gac cag gac ctc gtc ggc tgg cag gcg																912
Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala																300
ccc cct ggg gcg cgc tcc atg aca cca tgc acc tgc ggc agc tcg gac																960
Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp																315
																320
ctc tat ttg gtc acg aga cat gcc gac gtc att ccg gtg cgc cgg cgg																1008
Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg																335
ggc gac agt agg ggg agc ctg ctc tcc ccc agg cct gtc tcc tac ttg																1056 Gly
Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu																350

aag ggc tct tcg ggt ggc cca ctg ctc tgc cct tcg ggg cac gct gtg	1104
Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val	
355 360 365	
ggc atc ttc cgg gct gct gtg tgc acc cgg ggg gtt gca aaa gcg gtg	1152
Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val	
370 375 380	
gac ttc ata cct gtt gag tct atg gaa act acc atg cgg act agt agc	1200
Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg Thr Ser Ser	
385 390 395 400	
gct tgg cgt cac ccg cag ttc ggt ggt taa	1230
Ala Trp Arg His Pro Gln Phe Gly Gly *	
405	

<210> 2
 <211> 409
 <212> PRT
 <213> HCV

<400> 2

Met Asp Arg Glu Met Ala Ala Ser Cys Gly Gly Ala Val Phe Ile Gly	
1 5 10 15	
Leu Ala Leu Leu Thr Leu Ser Pro Tyr Tyr Lys Val Leu Leu Ala Arg	
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Leu Ile Trp Trp Leu Gln Tyr Leu Ile Thr Arg Val Glu Ala His Leu	
35 40 45	
Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile	
50 55 60	
Ile Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr	
65 70 75 80	
Lys Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly	
85 90 95	
Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala	
100 105 110	
Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met Ala	
115 120 125	
Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu	
130 135 140	
Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val	
145 150 155 160	
Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr	
165 170 175	
Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro	
180 185 190	
Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn	

195					200					205					
Phe	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ser
210						215					220				
Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly
225					230					235					240
Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val	Ser	Thr	Ala
			245						250					255	
Thr	Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys	Trp	Thr	Val
			260					265					270		
Phe	His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys	Gly	Pro	Ile
		275					280					285			
Thr	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Gln	Ala
	290					295					300				
Pro	Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp
305					310					315					320
Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg
				325					330					335	
Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Val	Ser	Tyr	Leu
			340					345					350		
Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ser	Gly	His	Ala	Val
		355					360					365			
Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val
	370					375					380				
Asp	Phe	Ile	Pro	Val	Glu	Ser	Met	Glu	Thr	Thr	Met	Arg	Thr	Ser	Ser
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Ala	Trp	Arg	His	Pro	Gln	Phe	Gly	Gly							
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<210> 3
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 <212> DNA
 <213> HCV

<220>
 <221> CDS
 <222> (1)...(1005)

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1				5					10					15		
ggc ata acc aaa gtg ccg tac ttc gtg cgt gcg cag ggg ctc att cgt															96	
Gly	Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu	Ile	Arg	
			20					25					30			

gcg tgt atg ttg gtg cgg aag gct gcg ggg ggt cat tat gtc caa atg	144
Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met	
35 40 45	
gcc ttc atg aag cta gct gcg ctg aca ggt acg tac gtt tat gac cat	192
Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His	
50 55 60	
ctc act cca ttg cag gat tgg gcc cac gcg ggc cta cga gac ctt gca	240
Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala	
65 70 75 80	
gtg gcg gta gag ccc gtc atc ttc tct gac atg gag gtc aag atc atc	288
Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile	
85 90 95	
acc tgg ggg gcg gac acc gcg gca tgc ggg gac atc att tca ggt ctg	336
Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu	
100 105 110	
ccc gtc tcc gct cga agg gga agg gag ata ctc ctg gga ccg gcc gat	384
Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp	
115 120 125	
aat ttt gaa ggg cag ggg tgg cga ctc ctt gcg ccc atc acg gcc tac	432
Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr	
130 135 140	
tcc caa cag aca cgg ggc cta ctt ggt tgc atc atc acc agc ctc aca	480
Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr	
145 150 155 160	
ggc cgg gac aag aac cag gtc gag ggg gag gtt caa gtg gtc tcc acc	528
Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr	
165 170 175	
gct aca caa tct ttc ctg gcg acc tgc gtc aac ggc gtg tgt tgg act	576
Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr	
180 185 190	
gtc ttc cat ggc gcc ggc tca aag acc ttg gcc ggc ccc aaa ggc cca	624
Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro	
195 200 205	
atc acc cag atg tac act aat gtg gac cag gac ctc gtc ggc tgg cag	672
Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln	
210 215 220	
gcg ccc cct ggg gcg cgc tcc atg aca cca tgc acc tgc ggc agc tcg	720
Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser	
225 230 235 240	
gac ctc tat ttg gtc acg aga cat gcc gac gtc att ccg gtg cgc cgg	768
Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg	
245 250 255	
cgg ggc gac agt agg ggg agc ctg ctc tcc ccc agg cct gtc tcc tac	816
Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr	
260 265 270	

ttg aag ggc tct tcg ggt ggc cca ctg ctc tgc cct tcg ggg cac gct	864
Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala	
275 280 285	
gtg ggc atc ttc cgg gct gct gtg tgc acc cgg ggg gtt gca aaa gcg	912
Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala	
290 295 300	
gtg gac ttc ata cct gtt gag tct atg gaa act acc atg cgg act agt	960
Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg Thr Ser	
305 310 315 320	
agc gct tgg cgt cac ccg cag ttc ggt ggt aaa aag aaa aag taa	1005
Ser Ala Trp Arg His Pro Gln Phe Gly Gly Lys Lys Lys Lys *	
325 330	
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Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met	
35 40 45	
Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His	
50 55 60	
Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala	
65 70 75 80	
Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile	
85 90 95	
Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu	
100 105 110	
Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp	
115 120 125	
Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr	
130 135 140	
Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr	
145 150 155 160	
Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr	
165 170 175	
Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr	
180 185 190	

Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro
 195 200 205
 Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln
 210 215 220
 Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser
 225 230 235 240
 Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg
 245 250 255
 Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr
 260 265 270
 Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala
 275 280 285
 Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala
 290 295 300
 Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg Thr Ser
 305 310 315 320
 Ser Ala Trp Arg His Pro Gln Phe Gly Gly Lys Lys Lys Lys
 325 330

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 <212> DNA
 <213> HCV

<400> 5
 ccatggaccg ggagatggct

20

<210> 6
 <211> 63
 <212> DNA
 <213> HCV

<400> 6
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 cat 63

<210> 7
 <211> 46
 <212> DNA
 <213> HCV

<400> 7
 gctcgagcat caccatcacc atcacactag tgcaggcata accaaa

46

<210> 8
 <211> 45
 <212> DNA

<213> HCV

<400> 8

aacaatggat ccttactttt tctttttacc accgaactgc ggggtg

45

<210> 9

<211> 45

<212> DNA

<213> HCV

<400> 9

acctgccata tgaaaaagaa aaagctcgag catcaccatc accat

45

<210> 10

<211> 303

<212> PRT

<213> HCV

<400> 10

Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile
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Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln
20 25 30

Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp
35 40 45

His Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu
50 55 60

Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile
65 70 75 80

Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly
85 90 95

Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala
100 105 110

Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala
115 120 125

Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu
130 135 140

Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser
145 150 155 160

Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp
165 170 175

Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly
180 185 190

Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp
195 200 205

Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser
 210 215 220
 Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg
 225 230 235 240
 Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser
 245 250 255
 Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His
 260 265 270
 Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys
 275 280 285
 Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg
 290 295 300

<210> 11
 <211> 393
 <212> PRT
 <213> HCV

<400> 11

Met Ala Ala Ser Cys Gly Gly Ala Val Phe Ile Gly Leu Ala Leu Leu
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 Thr Leu Ser Pro Tyr Tyr Lys Val Leu Leu Ala Arg Leu Ile Trp Trp
 20 25 30
 Leu Gln Tyr Leu Ile Thr Arg Val Glu Ala His Leu Gln Val Trp Ile
 35 40 45
 Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile Ile Leu Leu Thr
 50 55 60
 Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr Lys Leu Leu Leu
 65 70 75 80
 Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly Ile Thr Lys Val
 85 90 95
 Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala Cys Met Leu Val
 100 105 110
 Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met Ala Phe Met Lys Leu
 115 120 125
 Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu Thr Pro Leu Gln
 130 135 140
 Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro
 145 150 155 160
 Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr Trp Gly Ala Asp
 165 170 175
 Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro Val Ser Ala Arg
 180 185 190

Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn Phe Glu Gly Gln
 195 200 205
 Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg
 210 215 220
 Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn
 225 230 235 240
 Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe
 245 250 255
 Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val Phe His Gly Ala
 260 265 270
 Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr
 275 280 285
 Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala
 290 295 300
 Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val
 305 310 315 320
 Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg
 325 330 335
 Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser
 340 345 350
 Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg
 355 360 365
 Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro
 370 375 380
 Val Glu Ser Met Glu Thr Thr Met Arg
 385 390

<210> 12
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 <212> PRT
 <213> HCV

<400> 12
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 Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile Ile
 35 40 45
 Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr Lys
 50 55 60
 Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly Ile

65		70		75		80									
Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu	Ile	Arg	Ala	Cys
			85						90					95	
Met	Leu	Val	Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala	Phe
			100					105					110		
Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp	His	Leu	Thr
		115					120					125			
Pro	Leu	Gln	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala
	130					135					140				
Val	Glu	Pro	Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys	Ile	Ile	Thr	Trp
145					150					155					160
Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Ser	Gly	Leu	Pro	Val
			165						170					175	
Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro	Ala	Asp	Asn	Phe
			180					185					190		
Glu	Gly	Gln	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ser	Gln
		195					200					205			
Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg
	210					215					220				
Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val	Ser	Thr	Ala	Thr
225					230					235					240
Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys	Trp	Thr	Val	Phe
			245						250					255	
His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys	Gly	Pro	Ile	Thr
		260						265					270		
Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Gln	Ala	Pro
		275					280					285			
Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu
	290					295					300				
Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly
305					310					315					320
Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Val	Ser	Tyr	Leu	Lys
				325					330					335	
Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ser	Gly	His	Ala	Val	Gly
			340					345					350		
Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp
		355					360					365			
Phe	Ile	Pro	Val	Glu	Ser	Met	Glu	Thr	Thr	Met	Arg				
	370					375					380				

<210> 13
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 <212> PRT
 <213> HCV

<400> 13

Ala	His	Leu	Gln	Val	Trp	Ile	Pro	Pro	Leu	Asn	Val	Arg	Gly	Gly	Arg
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			20					25					30		
Asp	Ile	Thr	Lys	Leu	Leu	Leu	Ala	Ile	Phe	Gly	Pro	Leu	Met	Val	Leu
		35					40					45			
Gln	Ala	Gly	Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu
	50					55					60				
Ile	Arg	Ala	Cys	Met	Leu	Val	Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val
65					70					75					80
Gln	Met	Ala	Phe	Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr
				85					90					95	
Asp	His	Leu	Thr	Pro	Leu	Gln	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp
			100					105					110		
Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys
		115					120					125			
Ile	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Ser
		130				135						140			
Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro
145					150					155					160
Ala	Asp	Asn	Phe	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr
				165					170					175	
Ala	Tyr	Ser	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser
			180					185						190	
Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val
		195					200					205			
Ser	Thr	Ala	Thr	Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys
		210				215					220				
Trp	Thr	Val	Phe	His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys
225					230					235					240
Gly	Pro	Ile	Thr	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly
				245					250					255	
Trp	Gln	Ala	Pro	Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly
			260					265					270		
Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val
		275					280					285			

Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val
 290 295 300
 Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly
 305 310 315 320
 His Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
 325 330 335
 Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg
 340 345 350

<210> 14
 <211> 341
 <212> PRT
 <213> HCV

<400> 14
 Val Arg Gly Gly Arg Asp Ala Ile Ile Leu Leu Thr Cys Ala Val His
 1 5 10 15
 Pro Glu Leu Ile Phe Asp Ile Thr Lys Leu Leu Leu Ala Ile Phe Gly
 20 25 30
 Pro Leu Met Val Leu Gln Ala Gly Ile Thr Lys Val Pro Tyr Phe Val
 35 40 45
 Arg Ala Gln Gly Leu Ile Arg Ala Cys Met Leu Val Arg Lys Ala Ala
 50 55 60
 Gly Gly His Tyr Val Gln Met Ala Phe Met Lys Leu Ala Ala Leu Thr
 65 70 75 80
 Gly Thr Tyr Val Tyr Asp His Leu Thr Pro Leu Gln Asp Trp Ala His
 85 90 95
 Ala Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Ile Phe Ser
 100 105 110
 Asp Met Glu Val Lys Ile Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys
 115 120 125
 Gly Asp Ile Ile Ser Gly Leu Pro Val Ser Ala Arg Arg Gly Arg Glu
 130 135 140
 Ile Leu Leu Gly Pro Ala Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu
 145 150 155 160
 Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly
 165 170 175
 Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly
 180 185 190
 Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys
 195 200 205
 Val Asn Gly Val Cys Trp Thr Val Phe His Gly Ala Gly Ser Lys Thr
 210 215 220

Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp
 225 230 235 240
 Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Met Thr
 245 250 255
 Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
 260 265 270
 Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
 275 280 285
 Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
 290 295 300
 Leu Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg Ala Ala Val Cys
 305 310 315 320
 Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met
 325 330 335
 Glu Thr Thr Met Arg
 340

<210> 15
 <211> 292
 <212> PRT
 <213> HCV

<400> 15
 Ala Gln Gly Leu Ile Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly
 1 5 10 15
 Gly His Tyr Val Gln Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly
 20 25 30
 Thr Tyr Val Tyr Asp His Leu Thr Pro Leu Gln Asp Trp Ala His Ala
 35 40 45
 Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp
 50 55 60
 Met Glu Val Lys Ile Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly
 65 70 75 80
 Asp Ile Ile Ser Gly Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile
 85 90 95
 Leu Leu Gly Pro Ala Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu
 100 105 110
 Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys
 115 120 125
 Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu
 130 135 140
 Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val

145		150		155		160
Asn Gly Val Cys Trp Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu						
	165			170		175
Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln						
	180			185		190
Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro						
	195		200		205	
Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp						
	210		215		220	
Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser						
	225		230		235	240
Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu						
		245		250		255
Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr						
	260			265		270
Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu						
	275		280		285	
Thr Thr Met Arg						
	290					

<210> 16
 <211> 303
 <212> PRT
 <213> HCV

<400> 16
 Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile
 1 5 10 15
 Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln
 20 25 30
 Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp
 35 40 45
 Ala Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu
 50 55 60
 Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile
 65 70 75 80
 Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly
 85 90 95
 Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala
 100 105 110
 Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala
 115 120 125

Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu
 130 135 140
 Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser
 145 150 155
 Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp
 165 170 175
 Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly
 180 185 190
 Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp
 195 200 205
 Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser
 210 215 220
 Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg
 225 230 235 240
 Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser
 245 250 255
 Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His
 260 265 270
 Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys
 275 280 285
 Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg
 290 295 300

<210> 17
 <211> 301
 <212> PRT
 <213> HCV

<400> 17

Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile
 1 5 10 15
 Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln
 20 25 30
 Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp
 35 40 45
 His Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu
 50 55 60
 Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile
 65 70 75 80
 Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly
 85 90 95
 Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala
 100 105 110

Asp	Asn	Phe	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Pro	Ile	Thr	Ala	Tyr	Ser		
		115					120					125					
Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly		
		130					135				140						
Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val	Ser	Thr	Ala		
145					150					155					160		
Thr	Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys	Trp	Thr	Val		
				165					170					175			
Phe	His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys	Gly	Pro	Ile		
			180					185					190				
Thr	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Gln	Ala		
		195					200					205					
Pro	Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp		
		210				215					220						
Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg		
225					230					235					240		
Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Val	Ser	Tyr	Leu		
				245					250					255			
Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ser	Gly	His	Ala	Val		
			260					265					270				
Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val		
		275					280					285					
Asp	Phe	Ile	Pro	Val	Glu	Ser	Met	Glu	Thr	Thr	Met	Arg					
	290					295					300						

<210> 18
 <211> 303
 <212> PRT
 <213> HCV

<400> 18

Ala	Gly	Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu	Ile		
1				5					10					15			
Arg	Ala	Cys	Met	Leu	Val	Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val	Gln		
			20					25					30				
Met	Ala	Phe	Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp		
		35					40					45					
His	Leu	Thr	Pro	Leu	Gln	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu		
	50					55					60						
Ala	Val	Ala	Val	Glu	Pro	Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys	Ile		
65					70					75				80			
Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Ala	Gly	Asp	Ile	Ile	Ser	Gly		

<222> (9)...(9)
<223> Tyr at position 9 is derivatized with 3-NO2

<400> 19
Asp Asp Ile Val Pro Xaa Ala Met Tyr Thr Trp
1 5 10

<210> 20
<211> 6
<212> PRT
<213> HCV

<220>
<221> VARIANT
<222> (1)...(1)
<223> Asp labeled with anthranilyl

<221> VARIANT
<222> (6)...(6)
<223> Xaa at position 6 is Abu

<400> 20
Asp Asp Ile Val Pro Xaa
1 5

<210> 21
<211> 10
<212> PRT
<213> HCV

<400> 21
Ser Phe Glu Gly Gln Gly Trp Arg Leu Leu
1 5 10

<210> 22
<211> 20
<212> PRT
<213> HCV

<400> 22
Ser Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr
1 5 10 15

Ser Gln Gln Thr
20

<210> 23
<211> 10
<212> PRT
<213> HCV

<400> 23
Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr
1 5 10

<210> 24
<211> 12
<212> PRT
<213> HCV

<400> 24
Lys Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr
1 5 10

<210> 25
<211> 6
<212> PRT
<213> HCV

<400> 25
Ala Pro Ile Thr Ala Tyr
1 5
